TS8000

Getting Started

HA471056U001
Issue 2

Parker SSD DRIVES

ENGINEERING YOUR SUCCESS.

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Product Overview

- **Configured with DSI8000 software**.
- **3 onboard RS-232/422/485 comms ports**.
- **Onboard 10/100 Base-T Ethernet** for device comms, web hosting, and unit networking.
- **USB Port** to download configuration files or transfer data from the unit.
- **4 Mb** (TS8003, TS8006), **8 Mb** (TS8008, TS8010), or **32 Mb** (TS8015) onboard flash memory (expandable with optional CompactFlash card).
- **3.2 inch LCD display** (TS8003) 128x64x2 color.
- **5.7 inch STN display** (TS8006) 320x240x256 color.
- **7.7 inch DSTN display** (TS8008) 640x480x256 color.
- **10.4 inch TFT display** (TS8010) 640x480x256 color.
- **15 inch TFT display** (TS8015) 1024x768x32K color.
- **32** (TS8003), **5** (TS8006), **7** (TS8008), **8** (TS8010), or **10** (TS8015) **button keypads** for on screen menus.
- **24vdc power** supply (+/- 20%).
- **Resistive Analog Touchscreen** (TS8006, TS8008, TS8010, TS8015).

General Description

The TS8000 Operator Interfaces combine unique capabilities normally expected from high-end units with a very affordable price. They are built around a high performance core with integrated functionality. This core allows the TS8000 series to leverage many of the features typically found in many PC based SCADA systems.

The TS8000 series are able to communicate with many different types of hardware using high-speed RS-232/422/485 and 10/100 Base-T Ethernet communications ports. In addition, the TS8000's feature a USB port for fast download of configuration files and access to trending and data logging. A CompactFlash socket is provided so that CF cards can be used to collect your trends and data logs as well as to increase the memory available for configuration files.

In addition to accessing and controlling of external resources, the TS8000 series allows a user to easily view and enter information. Users can enter data through the touchscreen or front panel keypad.

Safety Information

All safety related regulations, local codes and instructions that appear in the manual or on equipment must be observed to ensure personal safety and to prevent damage to either the instrument or equipment connected to it. If equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Do not use the controller to directly command motors, valves, or other process actuators not equipped with safeguards. To do so can be potentially harmful to persons or equipment in the event of a fault to the controller.

Contents Of Package

The TS8000 unit will come shipped with the following additional equipment:

- TS8000 Operator Interface terminal (TS8003/00/00, TS8006/00/00, TS8008/00/00, TS8010/00/00, or TS8015/00/00).
- 2 meter USB programming cable (CM471053).
- 5 meter serial communications cable (CM471054).
- DSI8000 software CD with Value Added Apps (RI471055).
- Getting Started bulletin (HA471056U000).
- Panel cutout template.
- Panel mounting hardware packet.
- Panel mounting gasket.
- Power supply terminal block.

Specifications

The following specifications pertain to the TS8000 series HMI. SSD Drives retains the right to modify specifications at any time, without prior notice.

Power Requirements

+24vdc (+/- 20%) @ 9.5W max (TS8003), 14W max (TS8006), 24W max (TS8008), 33W max (TS8010), 67W max (TS8015) - must use Class 2 or SELV rated power supply.

Power connection is available via removable 3-position terminal block.

Note: The TS8000's "common" is not connected to the unit's chassis. Refer to "**Connecting To Ground**" in the "**Installation And Power**" section of this document.

Battery

Lithium CR2025 "button" cell. Typical lifetime of 10 years.

LCD Module Display

Model	TS8003	TS8006	TS8008	TS8010	TS8015
Size	3.2 inch	5.7 inch	7.7 inch	10.4 inch	15.0 inch
Type	FSTN	STN	DSTN	TFT	TFT
Colors	2 w. Backlight	256 QVGA	256 VGA	256 VGA	32,000 XGA
Pixels	128 x 64	320 x 240	640 x 480	640 x 480	1024 x 768
Brightness	---	165 cd/m^2	120 cd/m^2	350 cd/m^2	600 cd/m^2
Backlight *	---	20,000 Hour typ.	40,000 Hour typ.	50,000 Hour typ.	50,000 Hour typ.

* Lifetime at room temperature.

Keypad

TS8003: 8 user legendable keys, 5 navigation keys, 12 numeric keys, 4 dedicated keys, and 3 soft keys. TS8006: 5 keys for on-screen menus. TS8008: 7 keys for on-screen menus. TS8010: 8 keys for on-screen menus. TS8015: 10 keys for on-screen menus.

Touchscreen

Resistive Analog Type (TS8006, TS8008, TS8010, TS8015).

Memory

User: 4Mb (TS8003, TS8006), 8Mb (TS8008, TS8010), or 32Mb (TS8015) onboard non-volatile flash memory.

Memory Card: CompactFlash Type II slot for Type I and Type II CF cards. See section on Options and Accessories for more details.

Communications

USB Port: Adheres to USB 1.1 specification. Device only using Type B connection.

Serial Ports: Format and baud rates are individually programmable up to 115.2kb.

- PGM Port: RS-232 port via RJ-12.
- COMMS Ports: RS-232 port via RJ-12. RS-422/485 port via RJ-45.
- DH485 TxEn: Transmit Enable; open collector, Voh = 15vdc, Vol = 0.5vdc @ 25mA max).

Ethernet Port: 10/100 Base-T. RJ-45 jack is wired as a NIC.

Environmental Conditions

Operating Temperature Range: 0 to 50 deg C.

Storage Temperature Range: -20 to 70 deg C. (TS8003, TS8006, TS8015) or 80 deg C. (TS8008, TS8010)

Operating and Storage Humidity: 80% maximum relative humidity (non-condensing) from 0 to 50 deg C.

Altitude: Up to 2000 meters.

Certifications And Compliances

Safety: IEC 1010-1, EN 61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory use, Part 1.

IP66 enclosure rating (face only), IEC 529.

Type 4X enclosure rating (face only), UL50.

Electromagnetic Compatibility: Emissions and immunity to EN 61326: Electrical equipment for measurement, control, and laboratory use, Part 1.

Immunity to industrial locations:

Electrostatic discharge	EN 61000-4-2 Criterion A
	4 kV contact xchrg, 8 kV air xchrg
Electromagnetic RF fields	EN 61000-4-3 Criterion B
	10 V/m
Fast transients (burst)	EN 61000-4-4 Criterion B
	2 kV power, 2 kv signal
Surge	EN 61000-4-5 Criterion A
	1 kV L-L, 2 kV L&N-E power

RF conducted interference	EN 61000-4-6 Criterion B 3 V/rms	

Emissions:

Emissions	EN 55011	Class A

Notes: Criterion A (normal operation within specified limits), Criterion B (temporary loss of performance from which the unit self recovers).

Construction

Steel rear metal enclosure with NEMA 4X/IP66 aluminum front plate when correctly fitted with the provided gasket. Installation Category II, Pollution Degree 2.

Mounting Requirements

Maximum panel thickness is 0.25 inch (6.3 mm). For NEMA 4X / IP66 sealing, a steel panel with a minimum thickness of 0.125 inch (3.17 mm) is recommended.

Maximum Mounting Stud Torque: 17 inch-pounds (1.92 N-m).

Weight

TS8003: 1.96 lbs (0.89 kg). TS8006: 3.00 lbs (1.36 kg). TS8008: 3.84 lbs (1.74 kg).

TS8010: 5.53 lbs (2.51 kg). TS8015: 11.41 lbs (5.17 kg)

Dimensions

Refer to "**Appendix A, B, C, D, and E - Dimensions**" for individual unit dimensions.

Installation And Power

The following specifications pertain to the TS8000 series HMI. SSD Drives retains the right to modify specifications at any time, without prior notice.

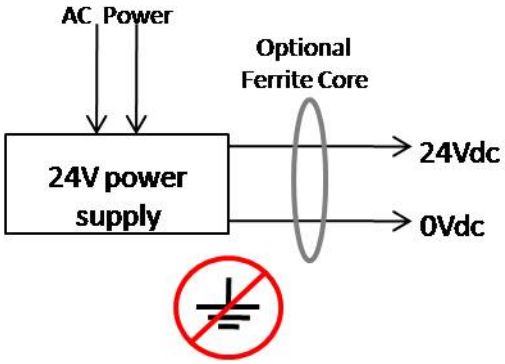
Mounting Instructions

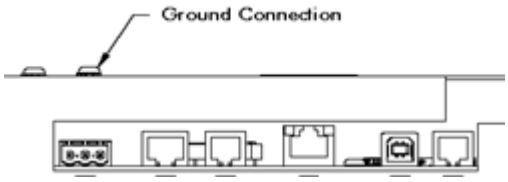
This operator interface is designed for through-panel mounting. A panel cutout diagram and a template are provided. Care should be taken to remove any loose material from the mounting cut-out to prevent it from falling into the operator interface during installation. A gasket is provided to enable sealing to NEMA 4X/IP66 specifications. Install the provided nuts and tighten evenly for uniform gasket compression. For more Detailed documentation, refer to "**Appendix A, B, C, D, and E – Mounting Templates**".

Connecting To Ground

This protective conductor terminal is bonded to conductive parts of the equipment for safety purposes and must be connected to an external protective grounding system.

Each TS8000 has a chassis ground terminal on the back of the unit. The unit should be connected to ground. The chassis ground is not connected to the signal common of the unit. Maintaining isolation between the ground and the signal common is not required to operate the unit, however, other equipment connected to this unit may require isolation between the ground and the signal common. *To maintain isolation between signal common and ground, care must be taken when connections are made to the unit*. For example, a power supply with isolation between its signal common and ground must be used. Also, plugging in a USB cable may connect signal common to ground.





TS8000 Ground Connection

Important: Do not connect the power supply common to ground. The TS8000 has its own chassis ground that should be utilized. To further reduce electrical noise, SSD Drives also recommends the use of a ferrite core on the 24Vdc and 0Vdc leads between the power supply and the TS8000.

Power Supply Requirements

The TS8000 series requires a 24vdc power supply, rated at 9.5W (TS8003), 14W (TS8006), 24W (TS8008), 33W (TS8010) or 67W (TS8015). The units may draw considerably less than the rated power depending upon the options being used. As additional features are used, the unit will draw increasing amounts of power. Items that could cause increases are: additional communications, optional communications cards, use of the CompactFlash card, and other features programmed through DSI8000.

In any case, it is very important that the power supply is mounted correctly if the unit is to operate reliably. Please take care to observe the following points:

- The power supply must be mounted close to the unit, with usually not more than 6 feet (1.8 m) of cable between the supply and the operator interface. Ideally, the shortest length possible should be used.
- The wire used to connect the operator interface's power supply should be at least 22 gauge wire. If a longer cable run is used, a heavier gauge wire should be used. The routing of the cable should be kept away from large contactors, inverters, and other devices which may generate significant electrical noise.
- A power supply with a Class 2 or SELV rating should be used. A Class 2 or SELV power supply provides isolation to accessible circuits from hazardous voltage levels generated by a mains power supply due to single faults. SELV is an acronym for "safety extra-low voltage." SELV circuits exhibit voltage that are safe to touch both under normal operating conditions and after a single fault, such as a breakdown of a layer of basic insulation or after the failure of a single component has occurred.

Software and Driver Installation

Please read the following instructions before connecting the TS8000 to your PC! It is important that you follow these instructions carefully or you may have to repeat the installation once more.

Install the DSI8000 software.

1. Insert the DSI8000 CD-ROM into the disk drive of the computer.
2. Installation should start after a few seconds. If no instructions appear, you may have auto-run disabled. If this is the case, select the Run option from the Start menu and enter ***x:\setup***, where ***x*** is the drive letter of your CD-ROM drive.
3. After the Install Shield window appears click ***Next >***. You will then be prompted to enter the User Name, Company Name, and Destination Folder. Click ***Next >***.
4. Install Shield should finish loading the DSI8000 software and when finished you will be prompted to click **Finish**.
5. After installing the software it is recommended that you click ***Help*** in the quick access toolbar then click ***Check for Updates***. This will verify you have the latest version of DSI8000.

Install the TS8000 HMI USB drivers.

1. Connect the TS8000 to your PC using the USB cable provided and then apply power to it. Windows will launch the ***Found New Hardware Wizard***.
2. The wizard may prompt you to locate updated device drivers. If prompted, select ***No, not at this time***, and then click ***Next >***.
3. The wizard will then ask you for install options. Choose ***Install from a list or specific location*** and then click ***Next >***.
4. Make sure that ***Search for the best driver in these locations*** option is selected as well as ***Include this location in the search***. In the navigation window, browse to ***C:\Program Files\SSD Drives\DSI8000\Device***, then click ***Next >***. It is important that you perform this step correctly, or you may have to manually remove the drivers using Windows Device Manager, and repeat the installation once more. Note that the TS8000 USB drivers have not been digitally signed by Microsoft. If prompted, click **Continue Anyway** to complete the installation process.
5. When the driver installation is complete click ***Finish***.

Note: If you have trouble accessing the TS8000 via USB communications, Windows Device Manager may give you valuable information as to the error. To access Windows Device Manager, right-click ***My Computer*** on the Windows Desktop. Select ***Properties*** in the drop-down list. Navigate to the ***Hardware*** tab. Click the ***Device Manager*** button. Expand the ***Universal Serial Bus controllers*** tree. The TS8000 installs itself as both ***HMI Loader*** and ***HMI***, depending on the stage of installation.

Communications

The following specifications pertain to the TS8000 series HMI. SSD Drives retains the right to modify specifications at any time, without prior notice.

Configuring a TS8000

The TS8000 series are configured using DSI8000 software. DSI is included in the software CD that comes packaged with each unit, or is also available from SSD Drives. Updates to DSI8000 are posted on the SSD Drives website as they are made available. By configuring the TS8000 using the latest version of DSI8000, you are assured that the unit has the most up-to-date feature set. DSI software can configure the TS8000 through the RS-232 PGM port, USB port, Ethernet Port, or the CompactFlash socket.

Cables And Drivers

The USB port is connected using a standard USB cable with a Type B connector. The driver needed to allow your PC to access the USB port will be installed along with the DSI8000 software. If this driver has not been installed, it can be downloaded from the website.

The RS-232 PGM port uses a specialized cable to connect to the serial port of your PC. If you choose to make this cable, refer to "**Appendix A, B, C, D, and E - Port Pin-Outs**" section of this document for wiring information.

The CompactFlash Card

The CompactFlash card can also be used to program a TS8000 by placing a configuration file and firmware on the CompactFlash card. The card is then inserted into the target TS8000 and the unit is then powered on. Refer to the "**DSI8000 User Manual**" (HA471055U001) for more information on this operation.

In order to transfer data from the CompactFlash card via the USB port, a driver must be installed on your computer. This driver is installed with DSI8000 and is located in the folder: C:\Program Files\SSD Drives\DSI8000\Device\. This may have already been accomplished if the TS8000 was configured using the USB port. Refer to the "Options and Accessories" section of this document for technical specifications on the CompactFlash Card.

Ethernet Communications

Ethernet communications can be established at either 10 Base-T or 100 Base-T speeds. The TS8000 unit's RJ-45 jack is wired as a true NIC (network interface card). For example, when wiring to a hub or switch, use a straight-thru cable. When wiring to another NIC, however, a cross-over cable must be used.

The Ethernet connector contains two LED's. A yellow LED in the upper right corner, and a bi-color (green / amber) LED in the upper left corner. The LED's represent the following status conditions:

LED Color	Description
Yellow (solid)	Link established
Yellow (flashing)	Data transfer active
Green	10 Base-T communications
Amber	100 Base-T communications

Refer to the "**DSI8000 User Manual**" (HA471055U001) for additional information on Ethernet communications.

RS-232 Communications

The TS8000 unit has two RS-232 ports: the PGM port, and the COMMS port. Although only one of these ports can be used for programming, both ports can be used for remote device communication. The RS-232 PGM port can be used for either master or slave protocols with any TS8000 configuration.

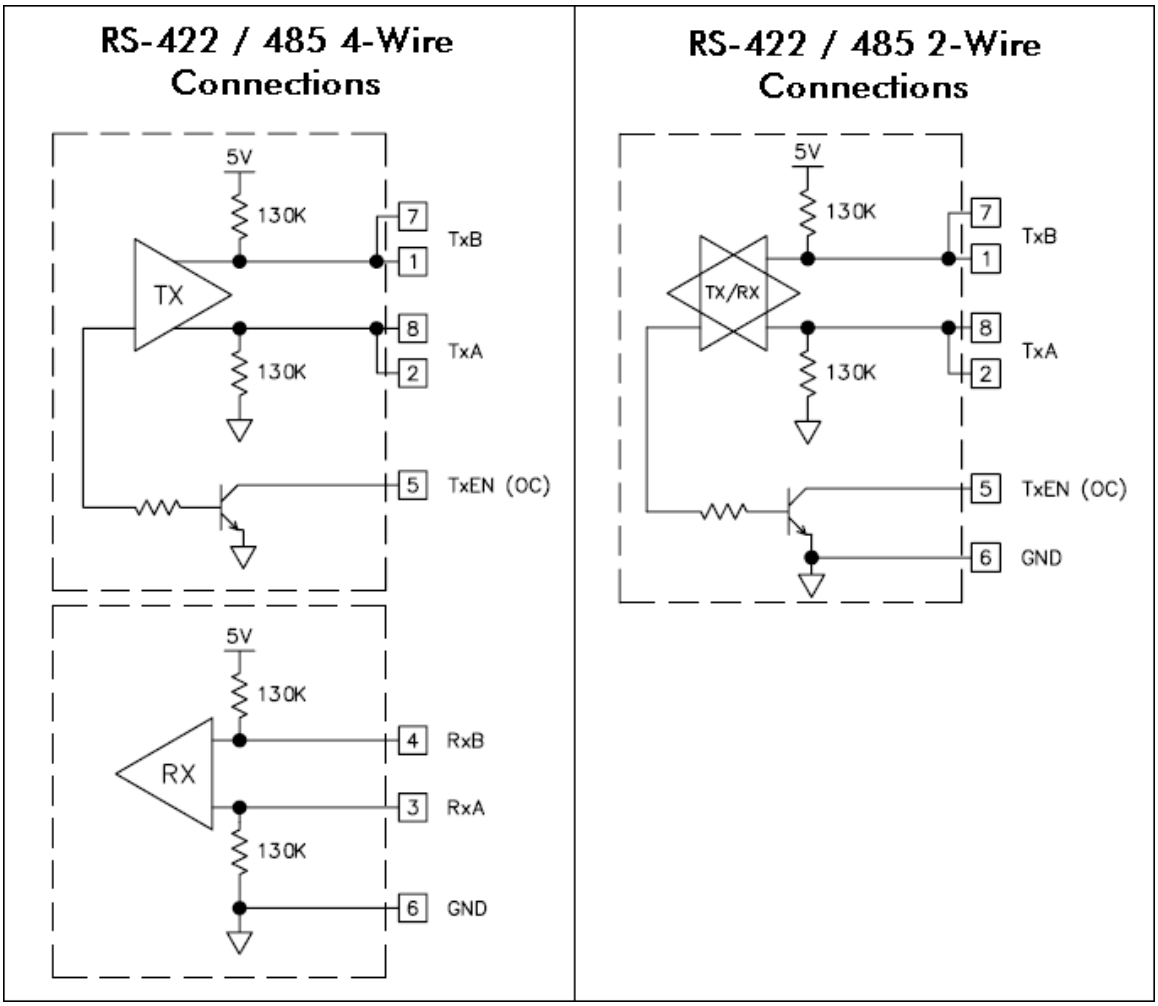
Examples of RS-232 communications could involve another SSD Drives product, a PLC, or a PC computer. By using a cable with RJ-12 ends on it, and a roll between Tx and Rx wires, RS-232 communications with another TS8000 series touchscreen can be established.

For RS-232 cable wiring between a TS8000 and a PC, refer to the following table:

RS-232 TS8000 To PC Connections			
TS8010: RJ-12	Name	PC: DB-9	Name
4	COM	1	DCD
5	Tx	2	Rx
2	Rx	3	Tx
	n/c	4	DTR
3	COM	5	GND
	n/c	6	DSR
1	CTS	7	RTS
6	RTS	8	CTS
	n/c	9	RI

RS-422/485 Communications

The TS8000 has one or more RS-422/485 port, depending on the model. This port can be configured to either RS-422 or RS-485, depending upon the user's needs.



Software / Unit Operations

The following specifications pertain to the TS8000 series HMI. SSD Drives retains the right to modify specifications at any time, without prior notice.

DSI8000 Software

DSI8000 software is included with each purchase of a TS8000 unit, or it is also available from SSD Drives. The latest updates to the software are always available from the SSD Drives website at www.ssddrives.com/usa under Resource Center/Software Downloads.

Keypad Buttons

The TS8003 keypad consist of five unique key types: eight legendable keys, 5 navigational keys, a 12 key numeric keypad, three soft keys for on screen menu selections, and four keys labeled ALARMS, MUTE, EXIT, and MENU. The TS8006 keypad consist of five user-assignable keys for on-screen menus. The TS8008 keypad consist of seven user-assignable keys for on-screen menus. The TS8010 keypad consist of eight user-assignable keys for on-screen menus.The TS8015 keypad consist of ten user-assignable keys for on-screen menus.

Front Panel LEDs

There are three front panel LEDs. Shown below is the default status of each of the LEDs:

LED	Indication
Red LED - Power	
Flashing	Unit is in the boot loader, no valid configuration is present.
Steady	Unit is powered and running an application.
Yellow LED – CF Card	
Off	No CompactFlash card is present.
Steady	A valid CompactFlash card is present.
Flashing Rapidly	Unit is checking the CompactFlash card.
Flickering	Unit is writing to the CompactFlash card.
Flashing Slowly	An incorrectly formatted CompactFlash card is present.
Green LED - Alarm	
Flashing	A tag is in an alarm state.
Steady	Valid configuration loaded and no alarms are present

Display

The TS8006, TS8008, TS8010 and TS8015 use a liquid crystal display (LCD) for displaying text and graphics. The display utilizes a cold cathode fluorescent tube (CCFL) for lighting the display. The CCFL tubes can be dimmed for low light conditions.

These CCFL tubes have a limited lifetime. Backlight lifetime is based upon the amount of time the display is turned on at full intensity. Turning the backlight off when the display is not in use can extend the lifetime of your backlight. This can be accomplished through the DSI8000 software when configuring your unit.

Touchscreen

The TS8006, TS8008, TS8010 and TS8015 utilize a resistive analog touchscreen for user input. The unit will only produce an audible tone (beep) when a touch on an active touchscreen cell in sensed. The touchscreen is fully functional as soon as the operator interface is initialized, and can be operated with gloved hands.

Troubleshooting the TS8000

If for any reason you have trouble operating, connecting, or simply have questions concerning your new TS8000, refer to Appendix F for troubleshooting tips.

Battery and Time Keeping

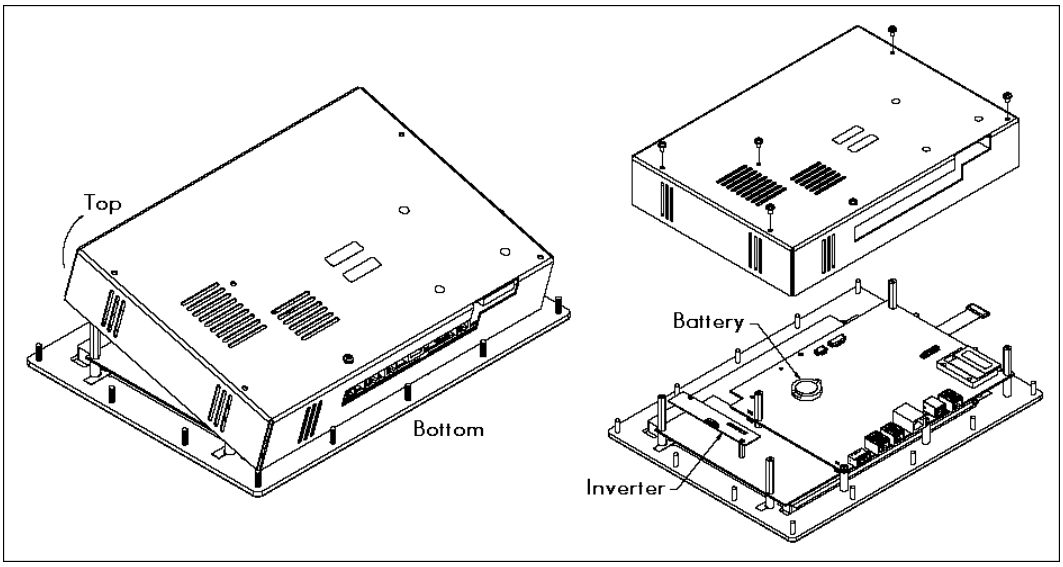
A battery is used to keep time when the unit is without power. Typical accuracy of the TS8000 time keeping is less than one minute per month drift. The state of the battery does not in any way affect the unit's program memory. All configurations are stored in non-volatile flash memory.

Caution – Risk Of Electric Shock: The inverter board, attached to the mounting plate, supplies the high voltage necessary to operate the backlight. Touching the inverter board may result in injury. Please exercise caution while working inside of the unit.

Caution: The circuit board contains static sensitive components. Before handling the operator interface without the rear cover attached, discharge static charges from your body by touching a grounded bare metal object. Ideally, handle the operator interface at a static controlled, clean workstation. Do not touch the surface areas of the circuit board. Dirt, oil, or other contaminants may adversely affect circuit operation.

To change the battery of a TS8000, remove all power and other cabling from the unit. Next, take off the unit's rear cover by removing the five screws designated by the arrows on the rear of the unit. Then, by lifting the top side, hinge the rear cover, thus providing clearance for the connectors on the bottom side of the PCB as shown in the illustration below. Remove the old battery from the holder and replace with a new one. The battery used is a CR2025 lithium button cell. Assemble in the reverse order.

The following example depicts the battery replacement procedure for a TS8010.


Top
Bottom
Battery
Inverter

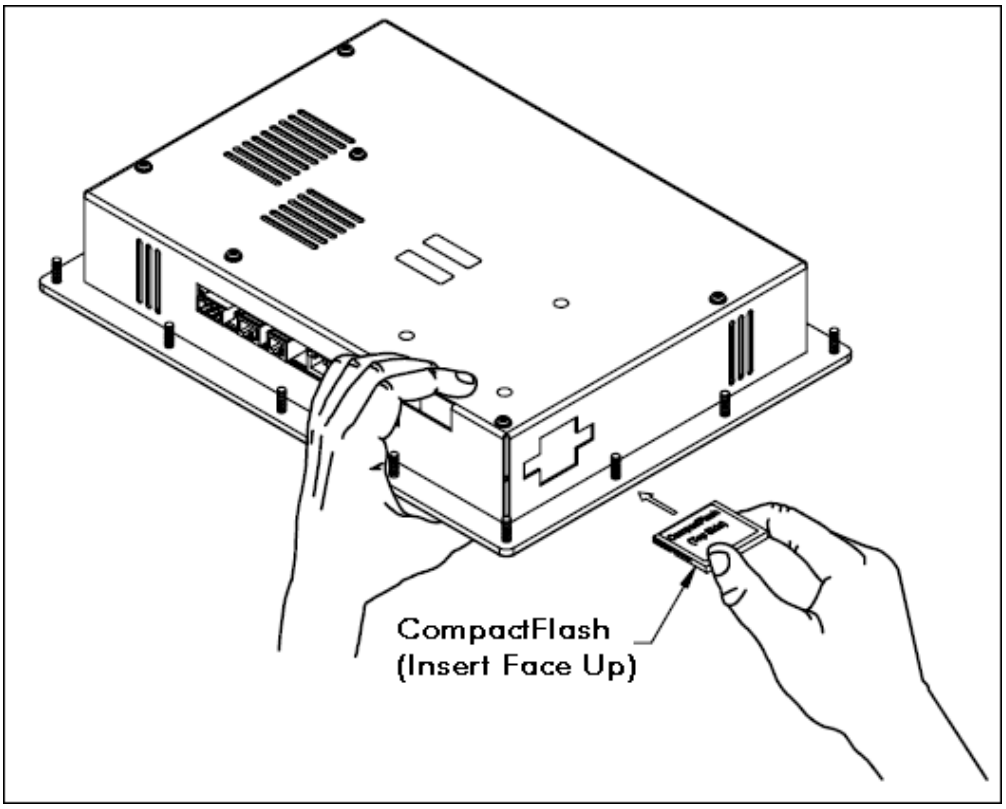
Options And Accessories

The following specifications pertain to the TS8000 series HMI. SSD Drives retains the right to modify specifications at any time, without prior notice.

CompactFlash Socket

The TS8000 is equipped with a Type II CompactFlash socket. This socket will accept either Type I or Type II cards. Make sure to use cards with a minimum of 4Mb and a maximum of 2 Gb capacity. Cards can be obtained at most computer and office supply retailers.

CompactFlash cards can be used for: configuration transfers, storage of larger configurations, data logging, and trend storage.



Note: *Do not remove or insert the CompactFlash card while power is applied to the unit. Refer to the "**Front Panel LEDs**" section of this document for more information.*

Information stored on a CompactFlash card can be read by a card reader attached to a PC. This information is stored in a Windows compatible FAT-16 file format.

NOTE: For reliable operation of the product, SSD Drives recommends the use of SanDisk and SimpleTech brands of CompactFlash cards.

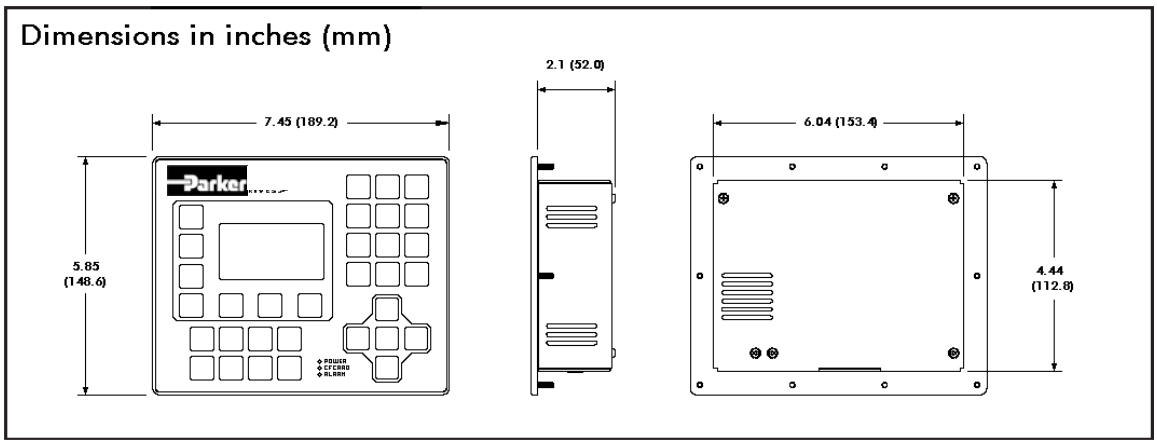
Optional Communications Cards

A communication card socket is provided for future communications cards. Visit the SSD Drives website for information and availability of these cards.

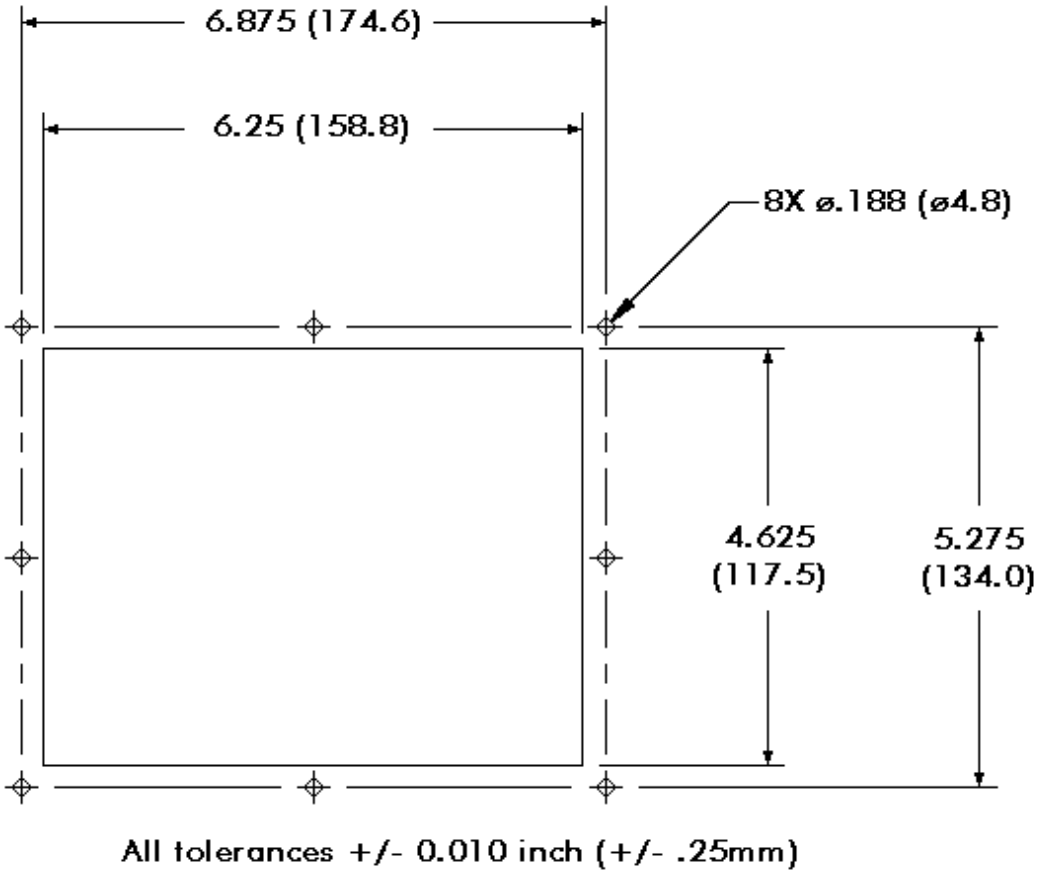
Appendix A – TS8003 Specifications

The following specifications pertain to the TS8003 series HMI. SSD Drives retains the right to modify specifications at any time, without prior notice.

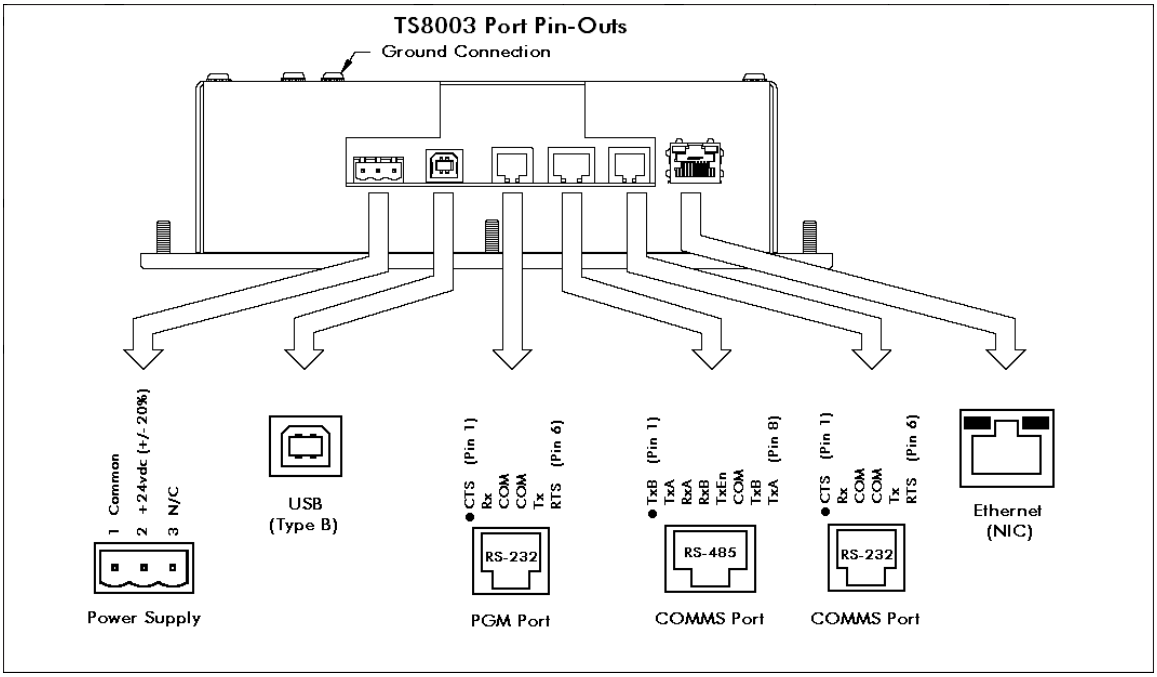
TS8003 Dimensions



TS8003 Mounting Specifications



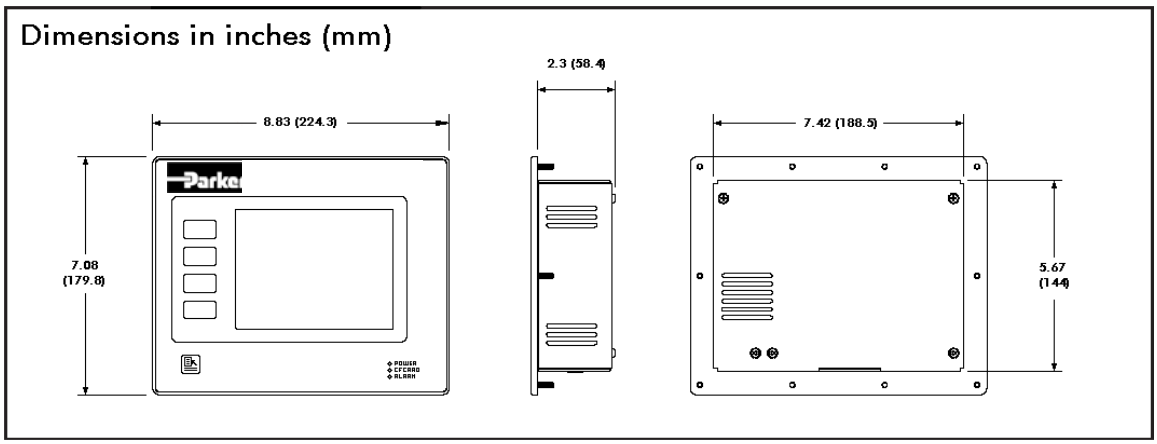
TS8003 Port Pin-Outs



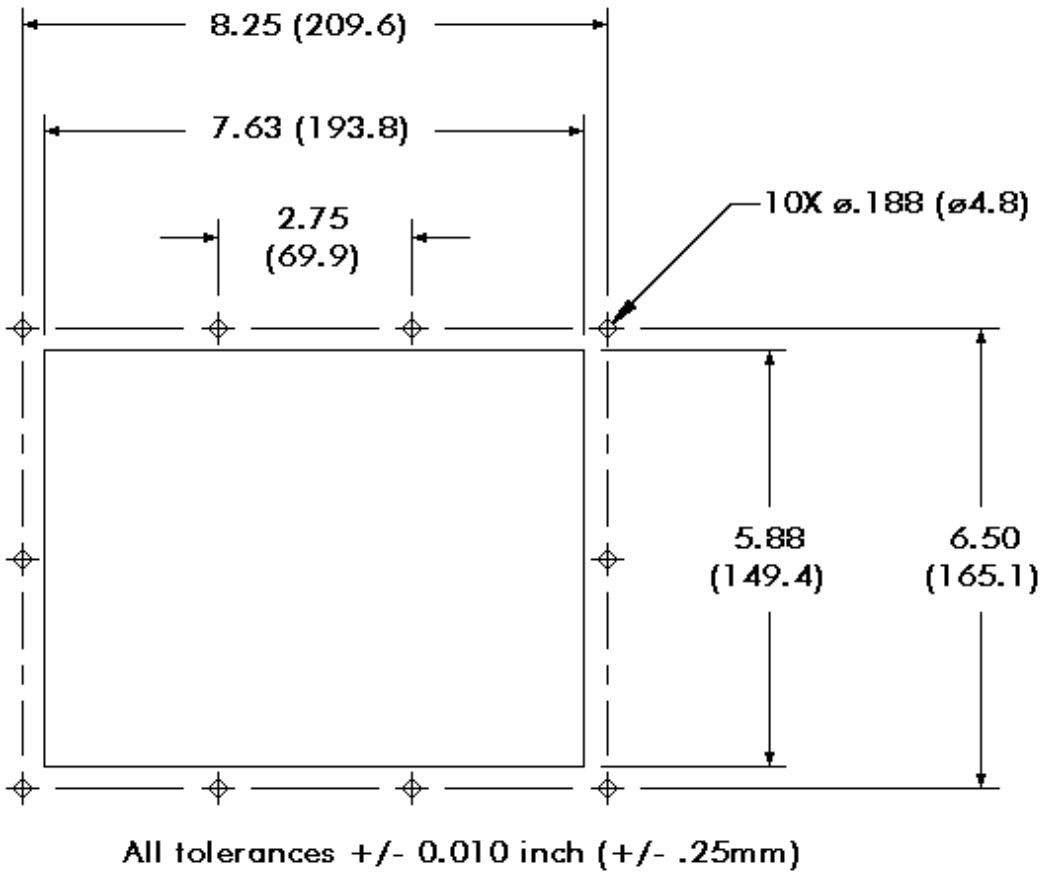
Appendix B – TS8006 Specifications

The following specifications pertain to the TS8006 series HMI. SSD Drives retains the right to modify specifications at any time, without prior notice.

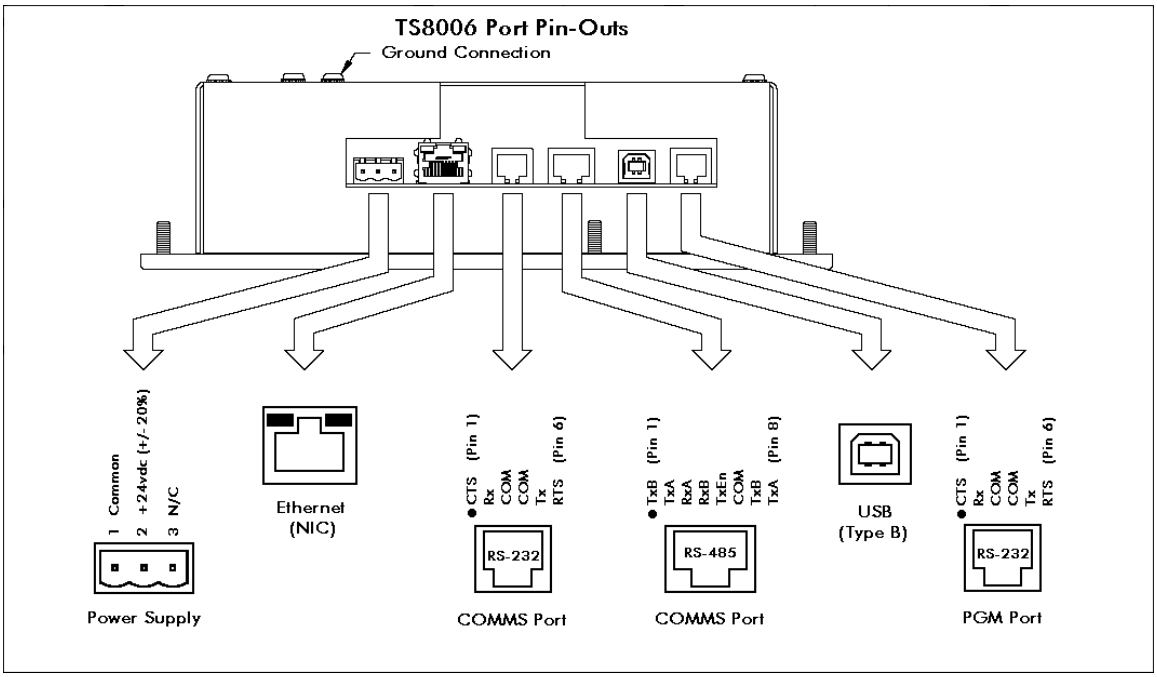
TS8006 Dimensions



TS8006 Mounting Specifications



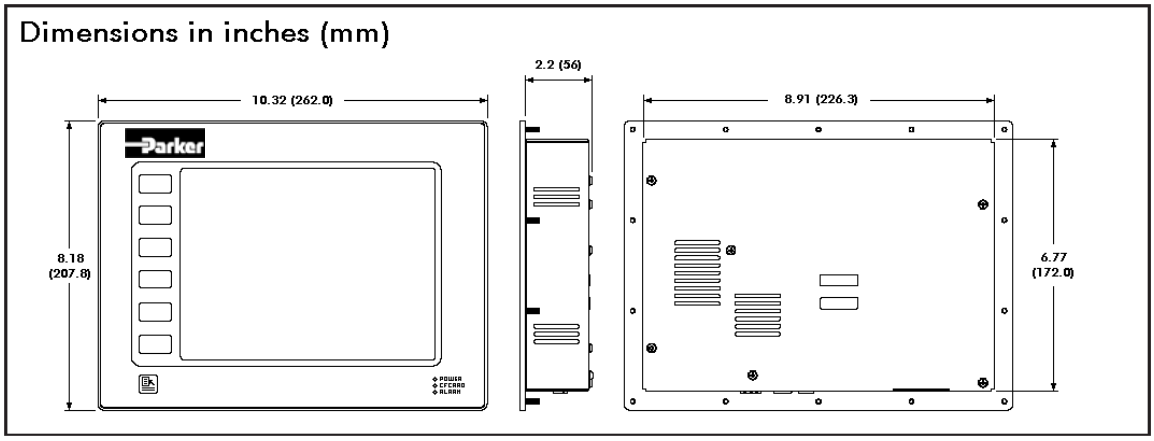
TS8006 Port Pin-Outs



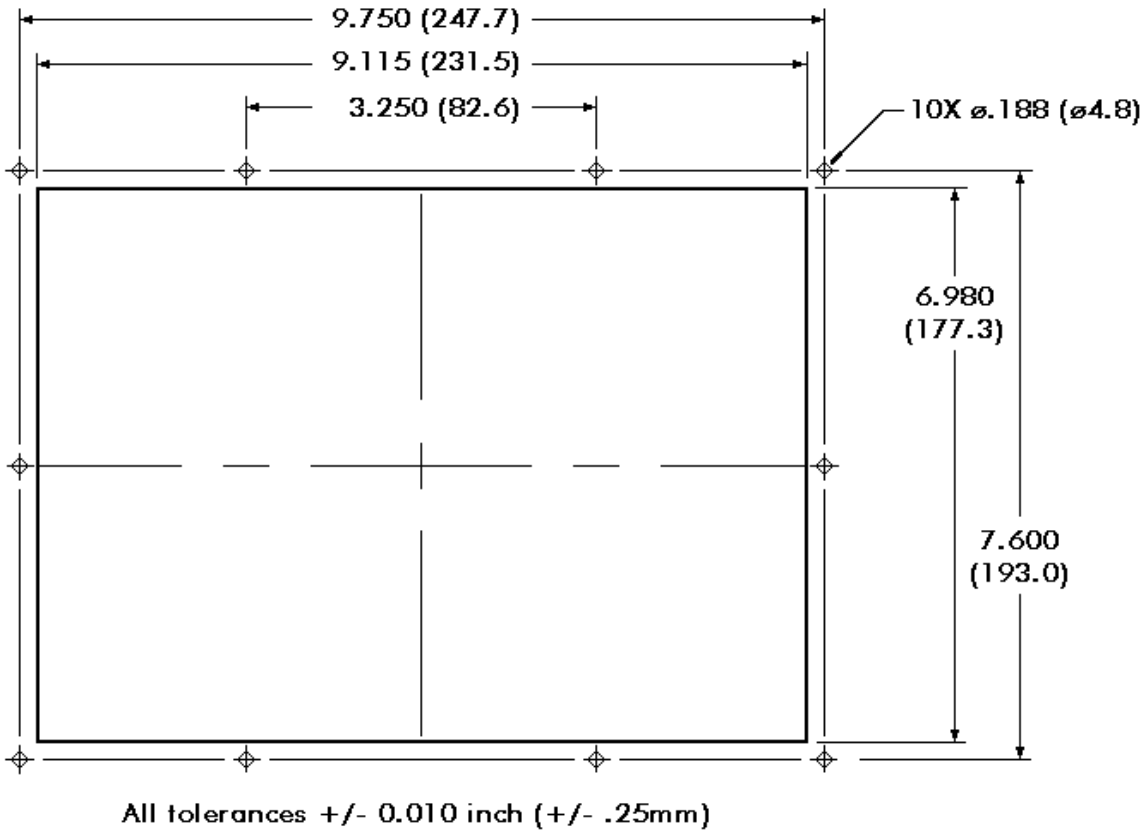
Appendix C – TS8008 Specifications

The following specifications pertain to the TS8008 series HMI. SSD Drives retains the right to modify specifications at any time, without prior notice.

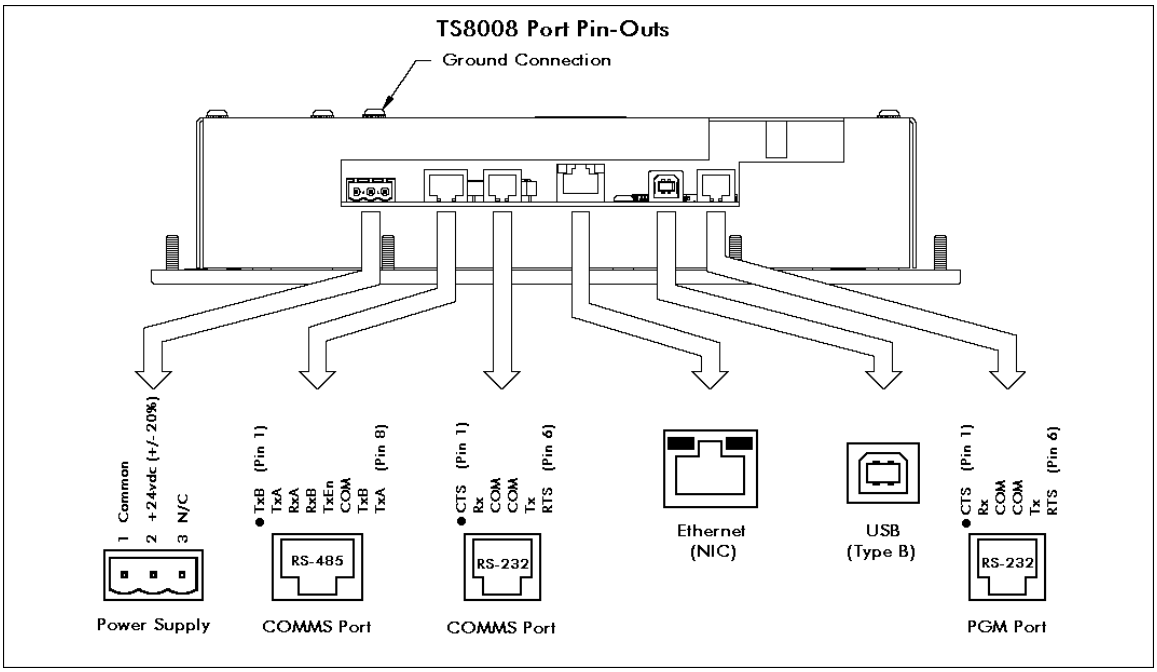
TS8008 Dimensions



TS8008 Mounting Specifications



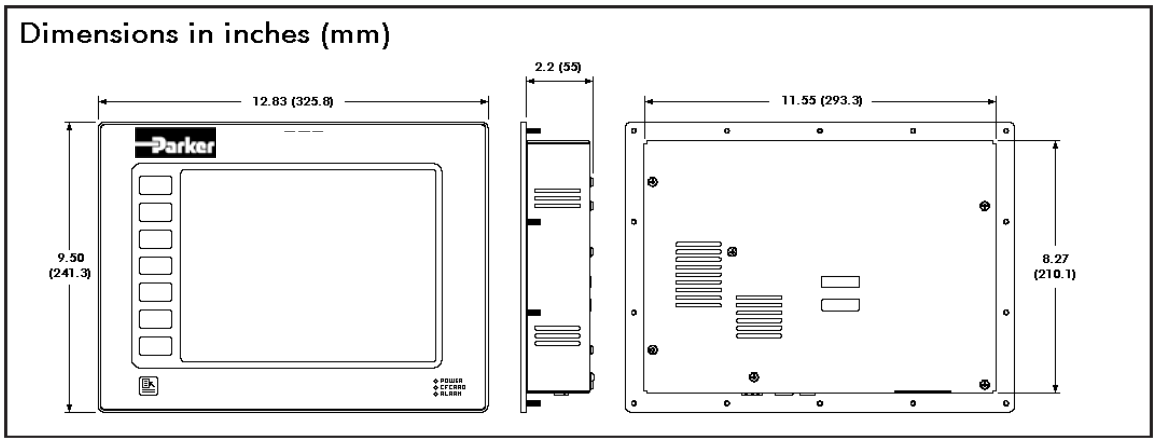
TS8008 Port Pin-Outs



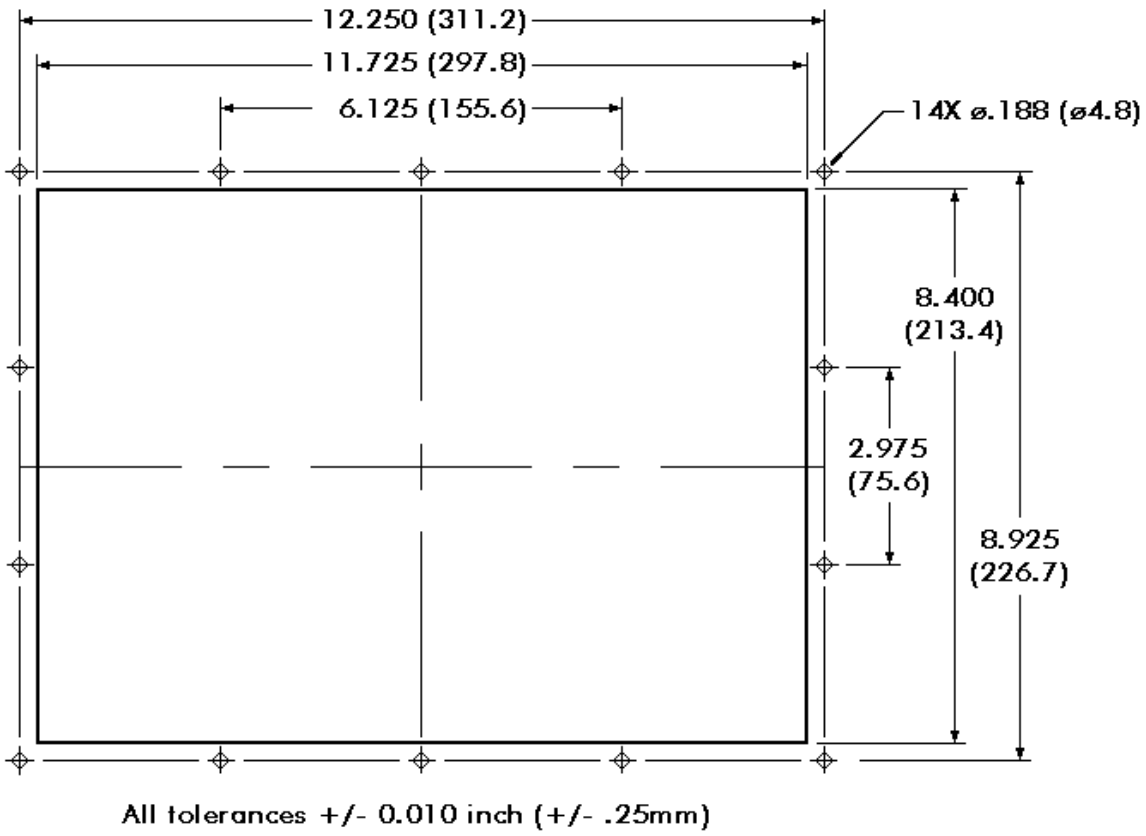
Appendix D – TS8010 Specifications

The following specifications pertain to the TS8010 series HMI. SSD Drives retains the right to modify specifications at any time, without prior notice.

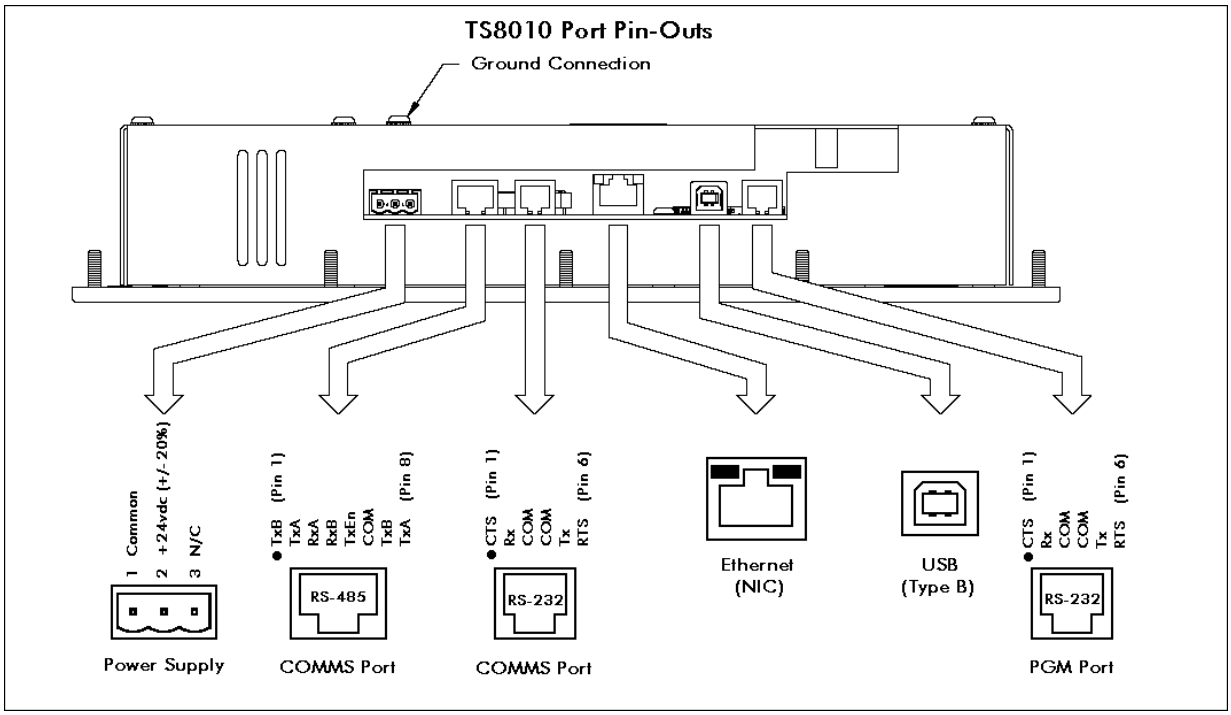
TS8010 Dimensions



TS8010 Mounting Specifications



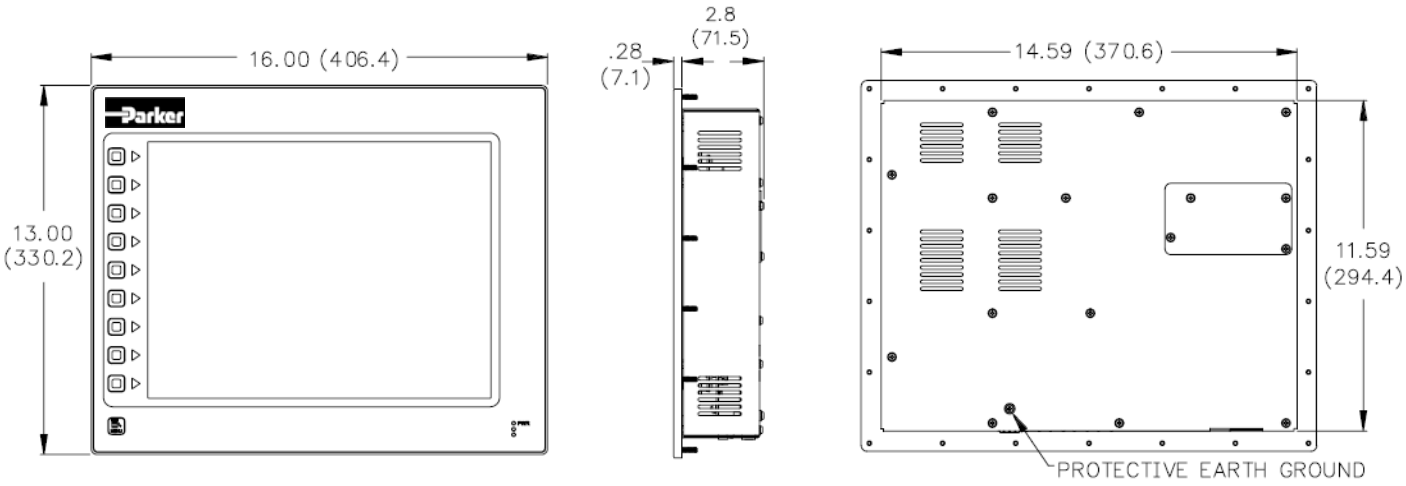
TS8010 Port Pin-Outs



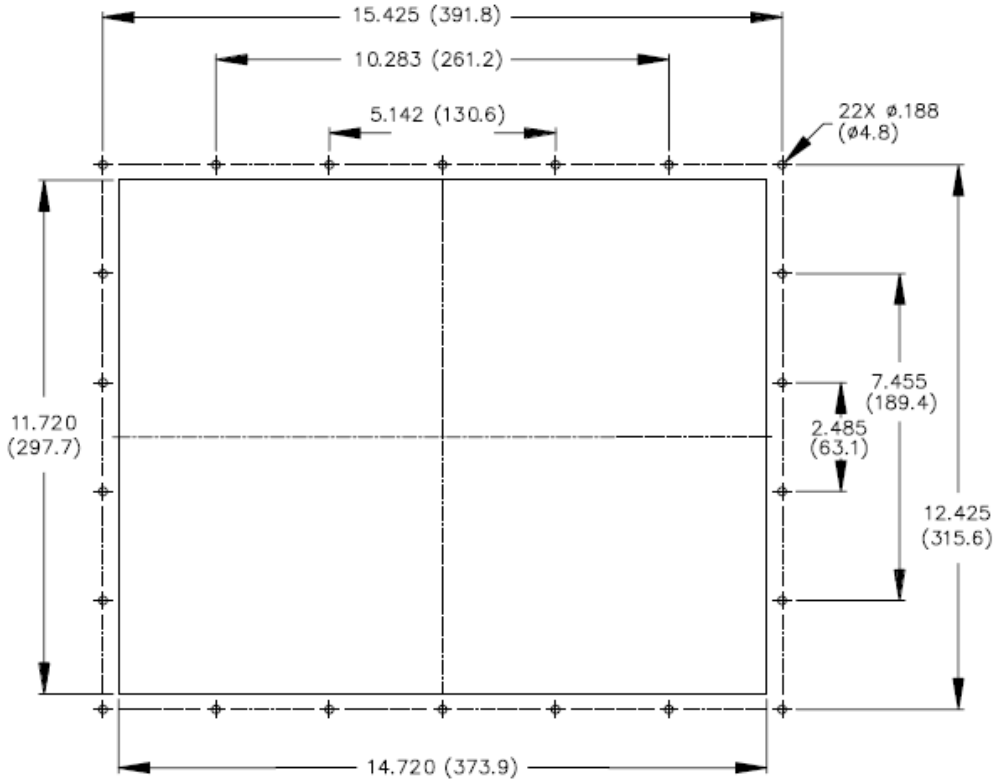
Appendix E – TS8015 Specifications

The following specifications pertain to the TS8015 series HMI. SSD Drives retains the right to modify specifications at any time, without prior notice.

TS8015 Dimensions

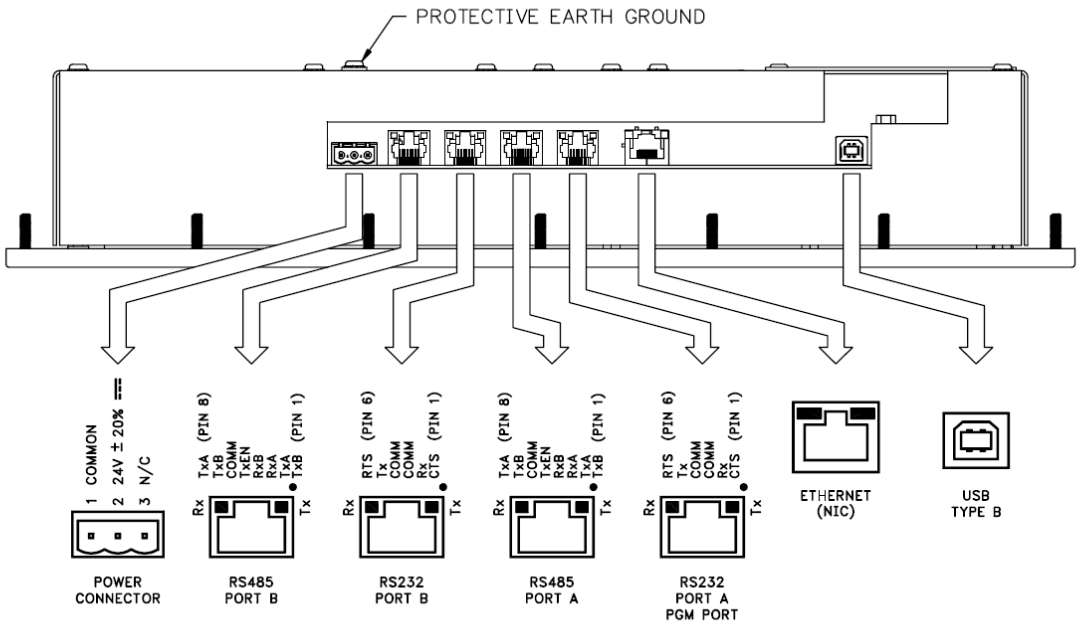


TS8015 Mounting Specifications



All tolerances ±0.010" (±0.25 mm).

TS8015 Port Pin-Outs



Limited Warranty

SSD Drives warrants the goods against defects in design, materials, and workmanship for the period of 12 months from the date of delivery on the terms detailed in SSD Drives Standard Conditions of Sale IA058393C.

SSD Drives reserves the right to change the content and product specification without notice.

Troubleshooting the TS8000

This section covers the most common problems encountered while setting up, programming or using the product.

Do not forget to always download in the device after changing settings in DSI8000.

GENERAL

PROBLEM	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
Unit screen is blank.		
And PWR LED off.	No power applied to the unit.	Check power supply. Units require 24 VDC, ± 10%.
And PWR LED on.	Contrast too low.	Program one of the soft keys with the action as User Defined and the following code in the field On Pressed: **dispcontrast++**
	No primitives on the display.	Add objects to the User Interface in DSI8000.
	Backlight is off.	Push one of the soft keys to turn it back on.
	Backlight tube is broken.	Replace the backlight tube.
Unit continually cycles on and off.	Cross-references between tags, e.g., Var1 uses Var2 as maximum which in turn uses Var1 as minimum.	Remove one of the references or use formula tags for indirect reference, e.g., Form1 is equal to Var1 and used in Var2 minimum instead of Var1.
	Database is corrupted.	Create a new database or send to technical support for debugging.
Unit cycles power after an operation.	Most likely a program going in an endless loop.	Check if the operation launches program containing loops with no exit point.
Touchscreen not accurate	The touchscreen is not calibrated correctly.	Use the Touch Calibration primitive to recalibrate. Primitive available under Insert > System > Touch Calib. Insert the primitive so it covers the entire screen.
CF LED flashing slowly.	CF card corrupted or invalid.	Format the card from DSI8000 using the Link > Format Flash menu.

PROBLEM	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
Unit shows "Version Mismatch".	The database currently in the device does not match DSI8000's firmware version. (Message occurs after a download with a new version of DSI8000 interrupted before the database was downloaded.)	Download the database from DSI8000 again.
Unit shows "Invalid Database".	The database in the device is corrupted or there are no databases in the device.	Download a database from DSI8000.
Values show "----"	No communication with target device	See Serial Communication or Ethernet Communication.
Value does not update.	The tag on the screen is not linked correctly.	Check the tag mapping making sure the target device (PLC, etc.) register is correct.
		Check the primitive Data Source in the user interface in case the word WAS is displayed. Re-link the tag in this case.
Value shows +BIG or –BIG.	Not enough digits before the decimal point to show the number. For example, data is 1000.5 and format is three digits before the decimal point and one after.	Increase the number of digits before the decimal point in the tag format.
Value deviates by a factor of ten.	The tag format is not correct.	Change the decimal point position in the tag format.
Value is invalid.	Incorrect tag type.	Check if the tag type corresponds to the data type. Is the data a floating point number and thus the tag a real (Pi symbol), and not an integer (X symbol)?
	Incorrect data mapping.	Check if the tag is accessing the correct target device register.
	Incorrect primitive on the display.	Check if the primitive corresponds to the tag type. For example, primitive is a Text Integer so the tag has to be an integer.
	Data received is not what's expected. For example, bytes reversed in the word.	Use the transform property on the tag to modify the data source. You might have to try multiple solutions to solve the issue.

PROBLEM	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
Symbol or image leaves a trace when animated.	The background of the image is not refreshed.	Change the primitive Fill Format to Solid color. Add the system variable **dispcount** in the background of the image to force the refresh.
Rich Bar Graph or Dial Gauge does not move	Tag minimum and maximum are not setup.	Check the tag's minimum and maximum values. These are used by both primitives for min and max.
Trend Viewer curve stuck at the bottom.	No minimum and maximum setup on the data tags displayed in the viewer.	Check that all displayed tags in the trend viewer have a Minimum and a Maximum setup.
Display shows "TIMEOUT" or "NOT READY" or "WORKING".	Program issue	See program troubleshooting.
USB Drivers location for Windows.	Location of the drivers unknown.	The drivers are located under DSI8000\Device installation folder. For example C:\Program Files\SSD Drives\DSI8000\Device.
USB Driver installation.	The operating system is unable to find the driver or the installation failed.	In your operating system device manager, check if the device TS8000 HMI is present. If so, uninstall that device. Follow the USB installation guide in this manual.
Upgrading DSI8000 did not upgrade the software version.	The option selected during the upgrade was Modify instead of Repair.	Launch the upgrade again and choose Repair when prompted.

DSI8000 MESSAGES

ERRORS	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
Device incompatible with file.	The device you are trying to download into doesn't match the database device.	Create a new database file corresponding to your device (File > New).
Unable to open communication port.	The communication port you try to download with is unavailable.	
	▪ Cable not connected	Check if the cable is connected correctly to the PC and the device programming ports (USB or PG Port).
	▪ Incorrect download communication port	Check that DSI8000 is directed to the correct communication port (Link > Options).
	▪ Port already used	Check that the communication port is not used by another service or software especially for serial ports.
	▪ Target device IP address incorrect	If you download via Ethernet, Check the IP address of the target device in Link > Options.
	▪ No USB Drivers	Check that the USB drivers were install successfully. Reinstall TS8000 HMI USB driver under the PC device manager if necessary.
No Reply from terminal	Cable is not connected	Make sure the cable is connected or check above solutions
	If the message appears while downloading to the device	Download again with Link > Update or F9
CompactFlash required for upgrade.	The version of DSI8000 on the PC is different from the target device firmware version when attempting a download via Ethernet.	Insert a CompactFlash Card in the target device.
		Use another communication port for download; USB or Serial.
The window is too small to allow editing.	The current User interface view is too small to allow editing.	Change the panel view using View > Panel > Display only.
The device returned an unexpected reply code.	The device you are trying to download to is not supported by this version of DSI8000.	Update DSI8000 to the latest version available on www.SSDDrives.com Choose Repair when upgrading.

SERIAL COMMUNICATION

This section is used to troubleshoot the communication between two devices linked via serial ports, i.e. RS232 or RS485.

TIP: For communication troubleshooting, it is strongly advised to create a new DSI8000 database including only one data tag mapped to a known register in the target device.

PROBLEM	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
Values show "----"	Port settings do not match.	Check that the port settings of the DSI8000 device match the target device (i.e. Baud, Parity, etc.).
	Incorrect target device address.	Check that the target device address in DSI8000 (in communications on the PLC symbol) matches the target device address setup.
	Incorrect cable	Check the cable part number or cabling to match your protocol.
	Incorrect communication port	Check if the cable is connected to the right communication port.
		If the above is correct, check that the protocol settings are on the right communication port in DSI8000.
	Communication port connector pins bent inward.	Although unlikely, check the communication port connector pins on the SSD Drives device in case some are bent inward resulting in a bad contact with the cable.
	Incorrect tag mapping	Check that the tag is mapped to an existing register in the target device.
Values blink between the data and "----"	Incorrect tag mapping on one of the tags on the display.	Delete tags one after another and download in-between. When the values on the screen stop blinking, the last deleted tag was mapped incorrectly or accessed an unknown register in the target device.
	Communications times-out.	Increase the Slave Response or Device Timeout on the communication port or target device in DSI8000.

ETHERNET COMMUNICATION

This section is used to troubleshoot the communication between two devices linked via Ethernet.

TIP: For communication troubleshooting, it is strongly advised to create a new DSI8000 database including only one data tag mapped to a known register in the target device.

PROBLEM	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
Values show "----"	Incorrect target device IP address.	Check the target device IP address in DSI8000 (in communications on the PLC symbol) to match the target device IP address setup.
	Incorrect cable or wrong connection.	Check the LED on the DSI8000 device Ethernet port. If none are lit, there are no connections. Check the cable or that the Ethernet port is enabled in DSI8000, see below.
	Ethernet port disabled.	Check that the Ethernet port in DSI8000 is enabled.
	DSI8000 and target devices are in a different address domain.	
	▪ If no routers are present on the network.	Check that the target device IP address and DSI8000 device IP address are different but in the same domain. (For example, both start with the same three first numbers; ex: 192.168.2.xxx if the mask is 255.255.255.0).
	▪ If a router is present on the network.	Check the DSI8000 device Ethernet port gateway address to match the router IP address.
	Incorrect tag mapping.	Check that the tag is mapped to an existing register in the target device.
Values blink between the data and "----"	Incorrect tag mapping on one of the tags on the display.	Delete tags one after another and download in-between. When the values on the screen stop blinking, the last deleted tag was mapped incorrectly or accessed an unknown register in the target device.

	Communications times-out.	Increase the Slave Response or Device Timeout on the communication port or target device in DSI8000.

PROGRAMS

PROBLEM	POSSIBLE CAUSES	POSSIBLE SOLUTIONS
The program does not seem to run.	Program not launched.	Check if the program is called somewhere in the database (code: **ProgramName()**).
	Some conditions in the program are not met (**if**, **switch** or loops).	If the DSI8000 device has a beeper, use the **beep()** function in the program to check if the program does go through the condition. Otherwise, use a dummy tag and change its value at different places in the program to check where it stops.
Display shows "NOT READY"	Program is launched but data are not available to run it yet.	If the message disappears, the program was launched successfully however it seems to require time to fetch all the required data. Communication is too slow or your database program is getting too complex.
Display shows "WORKING"	The device is busy working on a program.	The program takes too much time to run. Either run it in the background or reduce the workload. If it times-out, the program was stuck in a loop.
Display shows "TIMEOUT"	Program was unable to run due to unavailable data.	Make sure that all the tags in the program exist in the target device.

WEB SERVER

PROBLEM	POSSIBLE CAUSES	SOLUTIONS
Internet Browser says "Cannot display the web page"	Web Server not enabled.	Check that the Web Server in DSI8000 is enabled.
	Ethernet port disabled or Ethernet settings issue.	Check that the Ethernet port in DSI8000 is enabled and has a correct IP address. See Ethernet Communication troubleshooting.
	Incorrect DSI8000 device IP address.	Check that the IP address in the browser matches DSI8000's Ethernet IP address.
	Incorrect PC IP Address.	Check the PC Ethernet Settings for a valid IP address.

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TS8000 Getting Started

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